



SENT VIA ELECTRONIC TRANSMISSION

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c/o Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
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Re: **Comment Letter – Southern Delta and SJR Flow; the interaction of non-flow actions impacting salmon survival rates**

Dear Members of the Board:

This letter is submitted on behalf of the San Joaquin Tributaries Association (“SJTA”). Since 1995, flows at Vernalis have generally been higher than they were before 1995. However, recent technical reports from the State Water Resources Control Board (“SWRCB”) on developing San Joaquin River flow objectives concluded that salmon production has not improved and, if anything, has diminished. Flow has been described as the “master variable” and a Department of Fish and Game (“DFG”) salmon survival model even predicts that, in general, more flow results in more salmon. If flow is indeed the “master variable” and if, as a general matter, more flow results in more salmon, then flow alone should have been sufficient to improve salmon production. Since San Joaquin River flows have been higher for the seventeen years from 1995 through 2011, than the seventeen years from 1978 through 1994 and, at least in the view of DFG and the SWRCB, salmon production has not improved, then either flow is not the “master variable” or other factors are nullifying the effects of the increases in flow that have occurred since 1995. As the SWRCB contemplates flow objectives for the San Joaquin River, it must therefore consider how various factors contribute to salmon survival and interact in ways that could make flow more or less effective.

The 2010 review panel report for the Vernalis Adaptive Management Plan (“VAMP”) found that survival of juvenile salmon outmigrating by way of Old River was very low. However, installing and operating the Head of Old River Barrier (“HORB”) prevents salmon from attempting to

migrate through Old River.¹ Without the HORB, roughly 60 percent of outmigrating juvenile salmon enter Old River. Higher flows resulted in small improvements in through-Delta survival rates, but only with the HORB operating.²

In assessing the effectiveness of the HORB, the National Marine Fisheries Service (“NMFS”) determined that when the HORB is not operating, the through-Delta survival rate is only 9 percent regardless of flow. When the HORB is installed, the through-Delta survival rate of juvenile salmonid doubles, even with flows as low as 1,500 cfs.³ However, since the HORB can only be installed and maintained at flows of approximately 6,000 cfs or less, improvements in the through-Delta survival rate of migrating juvenile salmonids could be problematic with flows greater than approximately 6,000 cfs. As a result, flows in excess of 6,000 cfs, without the HORB, could be *less* effective, overall, than lower flows, including flows as low as 1,500 cfs. Even if DFG is correct and more flow equals more salmon, at a 9 percent rate of survival, the required flow to equal the combined effectiveness of 1,500 cfs and the HORB may result in water supply and other adverse impacts that are unreasonable in light of the relative benefit. Additionally, even if higher flows benefit salmon upstream, such benefits could be nullified by lower through-Delta survival rates.

Table 1. Route-specific through-Delta survival rates for juvenile salmonids

	Vernalis Flow (cfs)	Old River route	Mainstem San Joaquin River route
Flow	1,500	9%	18%
	3,000	9%	19%
	6,000	9%	21%

In analyzing the benefits of the HORB, NMFS qualified its analysis on the basis that over the course of time represented in its data set, which went back to the 1990s, the through-Delta survival rate changed. NMFS reports that, in 1995, the through-Delta survival rate was 79 percent, but since 2001, the survival rate has been less than 10 percent. As a result, the HORB and/or elevated flows would improve the through-Delta survival rate less under present conditions in the Delta than under conditions existing in the 1990s. It is therefore critical that the other causes of salmon mortality be addressed.

¹ On January 12, 2012, the parties to the *Consolidated Salmon Cases* filed a proposed joint stipulation regarding operations of the Central Valley Project and State Water Project in 2012. The proposed joint stipulation calls for the Department of Water Resources to install and maintain the HORB from April 1, 2012 through May 31, 2012, when flows are less than approximately 6,000 cfs. (Joint Stipulation Regarding CVP and SWP Operations in 2012, *Consolidated Salmon Cases*, E. Dist. Cal. E. Dist. Cal. Case No. 1:09-cv-1053-LJO-DLB, (Jan. 12, 2012) (http://swr.nmfs.noaa.gov/pdf/Joint_Stipulation_Regarding_CVP.pdf).)

² Dauble, D *et al.* 2006. The Vernalis Adaptive Management Program (VAMP) Report of the 2010 Review Panel. San Joaquin River Group Authority. May 13, 2010 (http://www.sjrg.org/peerreview/review_vamp_panel_report_final_051110.pdf)

³ National Marine Fisheries Service. 2012 Summary of the Expected Benefits to Salmonid Survival of a Rock Barrier at the Head of Old River & Preferential Use of the Central Valley Project Export Facility. National Marine Fisheries Service, Southwest Region. (http://swr.nmfs.noaa.gov/pdf/Summary_Expected_benefits_to_Salmonid_survival.pdf)

Predation, especially striped bass predation, has long been an acknowledged source of significant salmon mortality. In the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, it was recommended that the DFG, NMFS, and the United State Fish and Wildlife Service pursue programs to determine the impacts of introduced species, including striped bass, on native aquatic resources in the Bay-Delta, and the potential benefits of control measures. In 2010, DFG submitted a report to the Fish and Game Commission (“Commission”) recognizing that striped bass are the largest single cause of mortality of juvenile salmon migrating through the Delta.⁴ Now, in recommending the proposed regulatory revisions, DFG acknowledges that striped bass are a significant predator of Chinook salmon.⁵ The impact of striped bass predation on listed species such as spring-run Chinook can be especially significant, because spring-run Chinook and other listed species exist in relatively small numbers. Even if spring-run Chinook and other listed species constitute only a small portion of the striped bass diet, striped bass predation can nonetheless affect a large proportion of the listed species. Although spring-run Chinook and other listed species successfully coexisted with striped bass for many decades, the failure of habitat restoration and mitigation to improve the status of such species makes reducing striped bass predation more important than ever.

As a result, DFG is proposing revisions to the striped bass sport fishing regulations that are designed to reduce striped bass predation. The proposed revisions would raise the daily bag and possession limits, lower the minimum size requirement, establish a “hot spot” at Clifton Court Forebay, and allow striped bass fishing in areas where striped bass fishing is currently prohibited. As a “hot spot,” Clifton Court Forebay would have no daily bag or possession limits and no minimum size requirement. DFG expects both the abundance and average size of striped bass to diminish as a result of the proposed regulatory changes. Based on available data DFG, does not expect a precipitous decline in striped bass abundance to allow for expansions of other predators such that overall predation of Central Valley Chinook would not change. The Commission is scheduled to consider adopting the proposed regulations on February 2, 2012.

NMFS has proposed another method of reducing predation, and thereby increase the through-Delta rate of survival, to preferentially divert water through the Central Valley Project (“CVP”) facility instead of the State Water Project Facility (SWP).⁶ Preferentially diverting at the CVP facility would further reduce loss of juvenile salmonids at the export facilities by reducing exposure of juvenile salmonids to predation in Clifton Court Forebay. In the spring, the CVP and SWP typically evenly split their diversions, but preferentially diverting at the CVP facility, depending on the louver efficiency, can improve survival by 3 to 11 percent.

⁴ Department of Fish and Game. 2010. A Report to the California Fish and Game Commission on Stressors Impacting Delta Related Organisms, Appendix A. Department of Fish and Game. July 28, 2010 (<http://www.dfg.ca.gov/delta/reports/delta-organisms-stressors-report-20100728.pdf>)

⁵ Department of Fish and Game. 2012. Report and Recommendation to the Fish and Game Commission in Support of a Proposal to Revise Sportfishing Regulations For striped bass. Staff Report for the California Fish and Game Commission

⁶ National Marine Fisheries Service. 2012 Summary of the Expected Benefits to Salmonid Survival of a Rock Barrier at the Head of Old River & Preferential Use of the Central Valley Project Export Facility. National Marine Fisheries Service, Southwest Region. (http://swr.nmfs.noaa.gov/pdf/Summary_Expected_benefits_to_Salmonid_survival.pdf)

Table 2. Overall survival rate through the export facilities for combined exports of 2,000 cfs

CVP Louver efficiency⁷	SWP: 1,000 cfs CVP: 1,000 cfs	SWP: 500 cfs CVP: 1,500 cfs
78%	42%	53%
60%	35%	42%
35%	24%	27%

With the ready availability of methods to increase through-Delta survival without high flows, such as installing the HORB and reducing predation, the SJTA requests that the SWRCB evaluate the effects of such actions before requiring California to bear the impacts of committing a significant portion of its limited water resources to the benefit of fish and wildlife, and fall-run Chinook salmon in particular. If non-flow based actions such as installing and operating the HORB and suppressing predators such as striped bass can improve through-Delta salmon survival, then it may be possible to improve salmon production with little or no additional allocation of California's water resources. Consequently, flow-based implementation actions should come only after non flow-based actions, such as the HORB and predator suppression, have been implemented and evaluated.⁸ Regardless, with only finite water resources available, the SWRCB would be irresponsible to ignore non-flow based actions that are effective at improving the through-Delta survival rate of juvenile salmon and failing to maximize the "bang for the buck" achieved with flow.

The SJTA appreciates the opportunity to offer constructive comments and looks forward to participating in future processes.

Very truly yours,
O'LAUGHLIN & PARIS LLP



KENNETH PETRUZZELLI

KP/tb
cc: San Joaquin Tributaries Association

⁷ The loss equations assume 78 percent as the nominal louver efficiency at both facilities, though realized louver efficiency at the CVP is expected to be lower due to inefficiencies in the louver cleaning process.

⁸ The SWRCB could include flow-based actions and recommendations to other agencies for non flow-based actions, but since other agencies would be responsible for such actions there is no guarantee as to when such actions would be taken, if ever. Only now, seventeen years after the SWRCB recommended reducing striped bass predation through revised sport fishing regulations, has DFG acknowledged that striped bass predation is a significant problem that must be addressed.